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ABSTRACT

This paper discusses the performance of 20 disabled secondary readers, on Carol Chomsky's tests of five stages of language development. These results, which indicated a low level of lingusitic competence for 18 of the 20 subjects, are reviewed against related studies. Analyses of the reading of these subjects indicated that they made most of their meaning-affecting miscues on complex structures. A number of suggestions are given for strengthening the language development and reading skills of such students. (Author/AA)

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# THE LANGUAGE DEVELOPMENT OF THE DISABLED SECONDARY READER

Nancy A. Mavrogenes

As psycholinguists say, too much attention has been paid to reading performance and not enough to the reading process as it works in a person's mind (Cooper and Petrosky, 1976). The purpose of this study is to explore one aspect related to the reading process as displayed by disabled secondary readers: their level of language development.

## Chomsky's Stages in Language Development

The linguist Carol Chomsky has done pioneering work in language acquisition and language development. In the course of her work with children from the ages of five to ten, she has identified five distinct stages of linguistic development which children go through as they progress into mature users of language (Chomsky, 1972). All the children she has worked with seem to pass through the same stages of development although there is considerable variation in age of acquisition: there is generally a gradual improvement as children increase in age, but some children of ten were several stages behind others aged seven. Of the thirty-six children she tested, thirty- two were unable to succeed in all the stages.

These five syntactic structures are interesting, exceptional, relatively complex and infrequent. They are exemplified, in increasing order of difficulty, by these five sentences:

1. The doll is easy to see.
2. The soldier promises the bird to stand on the book.
3. The girl asks the boy what to paint.
4. Mother scolded Gloria for answering the phone, and I would have done the same.
5. Mother scolded Gloria for answering the phone, although I would have done the same.

In the case of these five structures the listener (or the reader) has to fill in a missing noun or verb phrase at variance with the general tendency of the language

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called the Minimal Distance Principle. This principle dictates that in a sentence such as "The girl tells the boy what to paint" the subject of the complement verb phrase what to paint is the nearest preceding noun candidate in the sentence, namely the boy. Chomsky's sentence "The girl asks the boy what to paint" violates this Minimal Distance Principle, and someone who does not know the exception to the rule will end up with the wrong interpretation. This sentence means "The girl asks the boy what she should paint."

Let's now look more closely at these five structures which are representative of five developmental stages in the acquisition of syntax. In "The doll is eager to see," doll is the subject of the sentence and subject of the infinitive to see. But in the sentence representing Stage 1 in Chomsky's developmental sequence, "The doll is easy to see," doll is the object of the infinitive and the subject is someone else which must be supplied at the meaning level. Stage 2 is represented by the sentence "The soldier promises the bird to stand on the book." In this case the subject of the infinitive to stand is not expressed and it must be understood not as the closest noun (the bird) but the furthest (the soldier); the general rule of the Minimal Distance Principle must be discarded and the exception substituted. In contrast to this sentence is "The soldier tells the bird to stand on the book." Here the bird (the closest noun) is to stand on the book. This is the common structure and works in the case of a host of other verbs besides tell (persuade, urge, want, expect, order, hire, and like).

Chomsky's Stage 3 becomes more complicated, because the verb ask not only breaks the general rule but is also inconsistent. Compare "The girl asks the boy to leave," "The girl tells the boy what to paint," and "The girl asks the boy what to paint." In the first two sentences the nearest noun (the boy) is indeed the subject of the infinitive to leave or the complement verb phrase what to paint. But in the last sentence the missing subject must be supplied by the mature user of language as she; i.e., "The girl asks the boy what to paint" means "The girl asks the boy what she should paint."

Chomsky's last two Stages, 4 and 5, look very similar: "Mother scolded Gloria for answering the phone, and I would have done the same," and "Mother scolded Gloria for answering the phone, although I would have done the same." In each case the listener (or reader) must fill in what "I would have done." In the first case the Minimal Distance Principle must be discarded and the far candidate for the same must be chosen: the same is scolded. But in the second case a specific knowledge of the although construction is needed in order to discard the exception to the Minimal Distance Principle which has just been used with and. Here what "I would have done" is answer the phone, the nearest candidate. This although structure represents the most difficult and sophisticated of the developmental stages in acquisition of syntax.

## This Study of Twenty Disabled Secondary Readers

In order to investigate the linguistic competence of disabled secondary readers, this study tested twenty such adolescents for their knowledge of Carol Chomsky's five developmental stages and thus extends Chomsky's work upward in age. These twenty subjects ranged from fourteen years and one month (14.1) to fifteen years and eleven months (15.11) in age. Sixteen of them were ninth-graders and four were tenth-graders; all were members of a corrective reading class in a high school in Aurora, Illinois, an industrial city of 80,000 situated forty miles west of Chicago. These students had been placed in this reading class on the basis of their eighth-grade scores on the Gates-MacGinitie Reading Test, Survey E, which had to be below fifth grade. On this same test after one quarter of this reading class their scores ranged from grade three to grade six in vocabulary and from grade two to grade eight in comprehension. Their IQ's ranged from 70 to 107. A word of caution is necessary here, however, since these IQ scores were taken from their cumulative folders and are based on a group IQ test which consists entirely of reading. Three of the subjects were black, three were Hispanic, five were female. Seventy per cent of the parents of these students had not graduated from high school; only two parents had education beyond high

school, one at a trade school and one some evening college classes. Thirty-three percent of the parents were factory workers, forty-three percent were laborers ranging from janitor to auto mechanic to roofer, and three of the parents owned their own business (a jewellry shop, a molding factory, and a printing shop).

The procedure followed in the testing was the same as described in Chomsky's study (1972). For Stage 1, "The doll is easy to see," a doll, with eyes that close, was placed lying down in front of the subject, who was asked if the doll was easy or hard to see, and then why and how the doll could be made hard to see. No students had any trouble with this construction. Chomsky found that everyone over the age of 7.1 succeeded here, and another study has corroborated that knowledge of this structure is consolidated by the age of 9 (Kessel, 1970). Stage 2, "The soldier promises the bird to stand on the book," required the subjects to manipulate small figures, a soldier and a bird (for younger children Chomsky used figures of Donald Duck and Bozo). First there were two practice sentences, which the subjects could read and listen to, using the verbs <u>want</u> and <u>decide</u>, and then five sentences with <u>promise</u>. Four out of the five sentences had to be understood correctly for success in this stage. Two-thirds of Chomsky's children and three-fourths of the adolescents succeeded.

Stage 3, as represented by the sentence "The girl asks the boy what to paint," was tested in two parts, one using conversation and the other using pictures. In the conversation part the subject was instructed to <u>ask</u> a partner five things and <u>tell</u> him five things (the difference between "Ask John what to feed the dog" and "Tell John what to feed the dog"). Four out of five correct responses on the <u>ask</u> construction were necessary for success. One third of Chomsky's children and only three of the adolescents responded correctly. In the picture part of this stage, the subjects were shown two pairs of pictures for two sentences: "Which picture shows the girl asking the boy what to paint?" (followed by "What is she saying to him?") and "Which picture shows the boy asking the girl what shoes to wear?" (followed by "What is he saying to her?"). Thirteen of the adolescents

succeeded with the picture test, but success in both tasks was necessary for success in this stage. The responses on the conversation task were of three kinds: the subjects told in response to ask ("Ask John what to feed the dog"; answer "Dog food"); or they understood they were to ask a question but they picked the wrong subject (answer "What are you going to feed the dog?" or occasionally "What to feed the dog?"); or they understood correctly and responded, "What should I feed the dog?" A further study of this exceptional construction has indicated that competence in it increases until the ages of ten or twelve, after which age most, but never all, subjects may be expected to demonstrate competence: for every two competent adults there was one noncompetent adult, even in the college group. Also, there seems to be a singificant and positive correlation between successful performance and IQ (Kramer et al, 1972).

For Stage 4, "Mother scolded Gloria for answering the phone, and I would have done the same," the subjects had two sentences to read and hear orally and then they had to say what "I would have done." Twenty-three of Chomsky's children and five of the adolescents failed to choose the far candidate (scolded). For Chomsky almost all the same children succeeded with ask and and; in the case of the adolescents substantially more succeeded with and than with ask. For Stage 5, "Mother scolded Gloria for answering the phone, although I would have done the same," the subjects again had to understand two sentences after making sure they understood although in general. In this case they had to know the specific although rule so they could distinguish between the two similar constructions differing only in the words and and although. Only four of Chomsky's children and three of the adolescents understood this construction.

Summaries of the results of these studies are in Charts I, II and III. There would seem to be a clear indication that the majority of disabled secondary readers have not by any means approached a mature understanding of their language. Only two of the twenty subjects understood correctly these five constructions; one subject understood four of the five; the other seventeen subjects understood only one, two, or three.

CHART I (taken from Chomsky, 1972, p. 19)

Developmental Stages in Children's Acquisition of Five Test Structures

| | easy to see | promise | ask | and | although |
|---|---|---|---|---|---|
| STAGE 1: age 5.9-7.1 n=4 | − | − | − | − | − |
| STAGE 2: age 5.9-9.5 n=9 | + | − | − | − | − |
| STAGE 3: age 6.1-9.9 n=12 | + | + | − | − | − |
| STAGE 4: age 7.2-10 n=7 | + | + | + | + | − |
| STAGE 5: age 7.6-9.9 n=4 | + | + | + | + | + |

+ Success − Failure

CHART II: Performance of Adolescents on the Same Five Structures

| | easy to see | promise | ask | and | although |
|---|---|---|---|---|---|
| STAGE 1: n=0 | − | − | − | − | − |
| STAGE 2: age 14.2 n=1 | + | − | − | − | − |
| STAGE 3: age 14.1-15.9 n=4 | + | + | − | − | − |
| STAGE sub-3 age 15.10-15.11 n=3 | + | − | − | + | − |
| STAGE 3½: age 14.8-15.6 n=8 | + | + | − | + | − |
| age 14.8 n=1 | + | − | + | + | − |
| STAGE 4: n=0 | + | + | + | + | − |
| STAGE sub-4: age 14.1 n=1 | + | + | − | + | + |
| STAGE 5: age 14.9-15.6 n=2 | + | + | + | + | + |

CHART III: Comparison of the Two Studies

| Structure | THIS STUDY Number passed | failed | CHOMSKY Number passed | failed |
|---|---|---|---|---|
| easy to see | 20 | 0 | 32 | 4 |
| promise | 15 | 5 | 23 | 13 |
| ask | 3 | 17 | 12 | 24 |
| and | 15 | 5 | 13 | 23 |
| although | 3 | 17 | 4 | 32 |

## Other Difficult Syntactic Structures

Other studies have pointed out further complex syntactic structures which are difficult for older students to understand and use. For instance, dependent clauses are a more mature type of structure than simple statements connected by and or but. Furthermore, phrases such as prepositional, participial, infinitive, gerund, appositive and absolute are a still more sophisticated strategy for classifying thought relationships. Walter Loban in his monumental report Language Development: Kindergarten through Grade Twelve (1976) reveals that after grade ten his Low group begins to catch up with the High group in the use of written dependent clauses but then the High group surges forward in the use of those more sophisticated structures. In the case of complex sentences containing main verbs taking underlying sentences as their complements ("Sally knew that she was early"), it has been shown that many sixth graders have not yet attained adult-level comprehension (Harris, 1975). Undergraduates understand passages better written in shortened sentences rather than longer ones using subordinate clauses, participial and infinitive phrases and conjunctions such as if, but, or, for. Older students understand embeddings of clauses better to the right of the main clause than to the left or in the middle; active sentences are easier to understand than passive; nominalizations, genitive pronouns, deletion transformations, and time-changing elements are other difficult structures to understand (Pflaum, 1974).

Another study has demonstrated that responses to conditional sentences (if ... then) show improvement from third grade to eleventh grade, the greatest improvement being between third grade and fifth grade (ages 8-11) and between seventh grade and ninth grade (ages 13-15). These age periods correspond closely to Piaget's ages for concrete operational thinking and formal operational thinking (Taplin, et al 1974). Difficulties with pronouns persist in the high school level (Palermo and Molfese, 1972), and ambiguous sentences are sometimes not able to be interpreted even at the onset of adolescence (Kessel, 1970, and Harris, 1975). Finally, students in the ninth grade have demonstrated a poor performance in interpreting the connective or (Palermo and Molfese, 1972). In fact, a significant relationship between reading comprehension and the comprehension of connectives has been shown in grades four, five and six and beyond (Robertson, 1968, and Rodgers, 1974). The conjunction although seems to be one of the most difficult connectives to understand (Stotsky, 1975, and Loban, 1976).

## How Language Is Acquired and How It Develops

In view of the fact that some adolescents, and especially disabled secondary readers, have trouble understanding many aspects of their language, it might now be worthwhile to explore the questions of how language is acquired, how it develops, and how language and cognitive development are related. Illumination of such questions might then give us clues about how to help such students.

When a child's cognitive processes have matured to a certain point of "language-readiness," he begins to produce utterances which have been created according to grammatical rules developed from what he has heard. He has never been taught language in a formal sense, but he has acquired it naturally from the raw material of his environment--from the language of the adults around him (Chomsky, 1976). These first utterances are not individual items but whole tonal patterns: sentence patterns as questions, exclamations, affirmations; therefore, the child does not reproduce all words with phonetic perfection (Lenneberg, 1967). As he continues to mature, he develops and refines and restructures the grammatical rule system

of his language by talking with those around him and by means of feedback received through this interaction (Hoskisson and Krohm, 1974). His language development unfolds in unstable states: a period of disequilibrium leads to new arrangements which bring about new disequilibria which produce further rearrangements, etc. (Lenneberg, 1967). There is evidence for two particular periods in which sudden changes in performance occur: between kindergarten and first grade and between fifth grade and seventh grade. During these periods there seem to occur large increases in new grammatical constructions and high error rates on some other constructions. After these periods there is growth to new levels and more stable performance. Again, these periods of linguistic development correspond with two of Piaget's transition points in cognitive development (Palermo and Molfese, 1972).

The fastest pace of language learning seems to be before the age of six. After this age, the pace slows down but considerable acquisition is still taking place, always involving the same stages of development but not by any means at the same age (Chomsky, 1976). Of particular interest for this study is the age at which language acquisition slows down or stops, if there is such an age. Biologists tell us that the developmental stage of language acquisition is quickly outgrown at the age of puberty (Lenneberg, 1967). At that time--or soon after, symptoms of aphasia tend to become irreversible; mentally retarded patients cease to make gains in language acquisition; cerebral reorganization of functions is no longer possible; the brain has reached its adult weight; the chemical composition of brain tissue shows few further changes; neurophysiological changes of the brain reach a stable state; and learning a foreign language becomes a labored effort with little hope of preventing an accent. Furthermore, the researchers who tested subjects between the ages of eight and twenty for their competence on the exceptional ask construction found that the proportion of subjects who comprehend within each age group "does not vary substantially from seventh grade on" (Kramer et al, 1972, p. 125).

However, these same researchers retested some of the original subjects two

years later. Their results "give no basis for support of the hypothesis that Ss tested originally at ages 12-13 and under would be more likely to pick up the exceptional structure than would older Ss" (Kramer et al, 1972, p. 127). In fact, all age groups improved. Loban (1976) has offered further specific data on students' continued language development during the high school years. In written language in grade eight both Low and High groups show a spurt in using the less common categories of noun clauses. By the ninth grade both groups have slowed up or fallen back in the use of written language, but from grades nine to ten they show rapid growth in writing. By tenth grade the Low group has even caught up to the High group for one year in the average number of dependent clauses per communication unit (a communication unit is each independent clause with its modifiers, the same as Kellogg Hunt's T-unit). After this time, the High group begins to use the more sophisticated structures mentioned earlier. In general, in all measures of oral language, children show a steady growth in elementary school years, a plateau or slower pace in grades seven, eight, and nine, and then greater growth again in the later years of senior high school. By grade twelve, in oral language, the Low group is showing a spurt in the average number of dependent clauses per communication unit and in the use of adverbial clauses. As Sandra Stotsky has concluded in her important review of the effectiveness of sentence-combining , "On the basis of these and many other studies it seems clear that oral and written syntactic growth continue well into adolescence and beyond" (1975, p. 47).

## Language Development and Socioeconomic Status

There is evidence that socioeconomic status is a major factor in determining a child's level of language development. Carol Chomsky (1972) found that the correlation between socioeconomic status and linguistic stage was high (significant at the .02 level)--that children from higher income families and with better educated parents were more advanced linguistically. In England Lawton found that middle-class adolescents, matched on IQ tests with their working-class counterparts, wrote more in thirty minutes and also used 50% more dependent clauses

(Stotsky, 1975). Loban believes that his study (1976) has offered clear evidence that proficiency in language accompanies affluence. His subjects who were socio-economically impoverished did not perform well in language--and they came from all groups, Anglo as well as black, Chicano and Asiatic. In oral language his Low group had a four-fold increase in average number of dependent clauses per communication unit from grade one to grade twelve and his High group a three-fold increase. "Thus one may hypothesize that the Low group's fundamental problem with syntax may arise from low socioeconomic status and a different early language environment" (p. 36). The social and linguistic background of the High group encouraged from them more "complexity of thought, functional uses of abstraction, distillations of experience into words, and imaginative foreseeing of consequences. Their need for more concepts induced language for categorizing, comparing, contrasting, and conjecturing as well as for clarifying and communicating feelings and emotions" (p. 89).

Work with bilingual adolescent Chicanos has found that lower and middle class groups use a syntactic style consistent with their socioeconomic class: the lower class's oral style was partially void of subordinations and with many questions and mazes while the middle class used many subordinations and was partially void of mazes. These findings seem to suggest that socioeconomic variables may be a prime determinant of English language development (Ziros, 1976, and Garcia, 1974). Another study of bilingualism has shown that the low bilingual group (in reading) use English syntactically in the same way as the low monolingual group but there are more bilingual children learning English at a slower rate; perhaps hearing two languages at home presents a much more complex system to be processed (Van Metre, 1974).

The English sociolinguist Basil Bernstein has provided insights into exactly how socioeconomic status affects language development (Bernstein, 1970, and Olim, 1970). He has identified two language styles: the elaborated code used by upper socioeconomic groups and the restricted code used by lower groups. The mother using the elaborated code emphasizes language by making explicit and elaborating for her child certain rules and reasons for the rules and their consequences.

Therefore the child begins to universalize as he understands the relationships between his particular act and general principles, reasons and consequences. He becomes aware of more options for thought and action, and he begins to explore his environment in order to maximize comparison among possibilities. The language used in such cases involves greater differentiation in lexical choices, more grammatical options, and more modal verbs of uncertainty or possibility. On the other hand, the mother using a restricted code places less emphasis on language in controlling her child; she only deals with the particular act and does not relate it to general principles, reasons and consequences. The child is therefore tied to a given context and does not transcend it. He deals with stereotypes and lacks exactness for precise conceptualization, differentiation and discrimination; information and alternatives and ideas are restricted as the appeals are to tradition and authority. Such a child is unable to develop a sense of competence and pleasure in using his mind to cope with his environment; he cannot use abstract concepts and complex problem-solving strategies. There are few intellectual stimuli; extraverbal communication becomes more important as there is less verbal planning and more rigidity of syntactic organization. Needless to say, a child from such an environment performs poorly on verbal IQ tests, has difficulty with abstract concepts, fails in language areas and in general is unable to profit from school.

Bernstein (p. 43) uses an example which helps to clarify these two language codes. The situation is that a child is visiting his sick grandfather and he does not want to kiss him because he has not shaved. Before they go, one mother says, "Grandpa's not well--I don't want none of your nonsense." The other mother says, "I know you don't like kissing Grandpa, but he is unwell and he is very fond of you, and it makes him very happy." In the latter case the child's intent is recognized and linked to another in a causal relation and there also appears to be a choice for the child, who, if he has further questions, will get further explanation.

Loban's study (1976) has made very clear the consequences of such a situation: from kindergarten through grade twelve the High group is high and the Low group

is low in "average number of words per communication unit; syntactical elaboration of subject and predicate; number of grammatical transformations (especially multiple-base deletion transformations); proportion of mazes to total speech; reading ability; writing ability; height and range of vocabulary; scores on listening tests; use of connectors (unless, although, etc.); use of tentativeness: supposition, hypotheses, conditional statements (the Low group is more inflexible, dogmatic, unwilling or unable to entertain nuances or ambiguity); number of dependent clauses; use of adjectival clauses" (p. 24). In the average number of words per communication unit, which Loban has used as an exceptionally good device for measuring the degree of language fluency, the Low group does not even reach the High group's first-grade level until fifth grade. In the last three years of high school the Low group are not using as many multi-base deletion transforms as the High group were using in grades one, two and three. Loban is especially struck by the fact that "those superior in oral language in kindergarten and grade one before they learned to read and write are the very ones who excel in reading and writing by the time they are in grade six" (p. 71).

## Language Development and Cognitive Development

The preceding discussion of Bernstein's elaborated and restricted language styles has made clear that the language of different social structures determines what a person learns, how he learns, and how his future learning may be limited. Other researchers have emphasized this relationship between language development and cognitive development (Olim, 1970; Harris, 1975; Kessel, 1970; Palermo and Molfese, 1972). The Russian child-psychologist L.S. Vygotsky, who had a strong impact on Piaget, put forth similar views: "Thought development is determined by language, i.e., by the linguistic tools of thought and by the sociocultural experience of the child. ... The development of logic in the child, as Piaget's studies have shown, is a direct function of his socialized speech. The child's intellectual growth is contingent on his mastering the social means of thought, that is, language" (quoted in Olim, 1970, p. 217). The anthropologists E. Sapir

and B.L. Whorf hypothesize that "the world can be structured in many ways, and the language we learn as children directs the formation of our particular structure. Language is not a cloak following the contours of thought. Languages are molds into which infant minds are poured" (quoted in Olim, 1970, p. 218). Man makes sense of his experience by meansof words standing for concepts and by combining words. The use of language requires the abstraction of categories of events, the recovery and recollection of concepts, and constant reshuffling of events into new and different categories.(Olim, 1970).

One reading diagnostician (Sawyer, 1974) has argued that diagnostic workups or instructional programs for disabled readers must begin to consider cognitive factors that are as yet untouched and untapped: 1)selective attention, so that the reader can direct his attention to relevant information; 2)a field independent approach to problem solving, so that the reader can seek relationships and restructure facts for new insights and meaning; and 3)reflection instead of impulsivity, so that the reader will ponder over responses and thus make fewer errors.

## Language Development and Reading

Before we venture suggestions for helping our disabled secondary readers improve their language development, one final topic must be considered: what is the relationship between language development and reading? Is there evidence that good readers have a strong knowledge of syntax, that poor readers do not have this knowledge, or that improved syntactic understanding will make better readers? Work in these areas has been recent and is still ongoing and incomplete, but it is intriguing.

Carol Chomsky, in her testing for linguistic stages of development (1972), also investigated the reading background of her subjects. She obtained her information from questionnaires to children and parents, records kept at home of reading, recall of books read and heard, and calculation of the complexity of independent reading and listening. She found that there was a positive relationship between reading exposure and linguistic stages and that the top linguistic stage is strikingly

characterized by having read (or listened to) a larger number of books, having taken out more books on regular visits to the public library, and having read more complex materials. One of the bilingual studies mentioned earlier (Van Metre, 1974) compared comparable groups of high and low bilingual and monolingual third-grade readers. The researcher tested them on some of Chomsky's measures of linguistic maturity and found that the high groups of both bilinguals and monolinguals scored significantly better than the low bilinguals and low monolinguals. Some of the conclusions are that knowledge of syntax does play a role in the reading process and that "children who are doing well in reading know more about complex syntactic structures of English than do children who are not doing well in reading" (Van Metre, 1974, p. 107).

Arthur Applebee's recent review (1977) of the relationships between reading and writing has summarized several interesting studies. One has shown that good and poor readers in sixth and ninth grades differ significantly in how they perform on a test of comprehension of syntactic structure. Another sampled ninety-six seventh graders and found "a close and reliable" relationship between reading achievement and written syntactic attainment. Applebee sums up the Goodmans' work with miscue analysis by pointing out that "the ability to bring implicit knowledge of syntax to bear while reading ... has emerged consistently as a characteristic of better readers, at least as reflected in the types of miscues which they characteristically make" (p. 535).

The twenty disabled secondary readers whose low level of language development has been reported above were also asked to read the story "Space Pet" from the Reading Miscue Inventory (Goodman and Burke, 1972). Since Ruddell (1965) has reported that reading comprehension improves when the reading material is most like the sentence structures used in the readers' oral speech, and since there is evidence that embeddings and deletion transformations are signs of mature language usage and that these structures make reading passages more difficult to comprehend (O'Hare, 1973, and Stotsky, 1975), it was thought that it might be

revealing to analyze these readers' miscues which disrupted meaning. The story "Space Pet" has a readability level of low sixth grade according to Fry's readability formula, and it consists of 26% simple sentences and 74% complex sentences. Here "complex sentence" means not only a sentence with at least one dependent clause, as in traditional grammar, but also a sentence with two or more single bases or kernels, as in transformational grammar. Thus the sentence "In his hand lay a tiny bunch of yellow feathers, with claws sticking up in the air" would be classified as "complex." In their reading these disabled secondary readers made miscues which disrupted meaning on an average of 17% simple sentences and 83% complex sentences. This might be interpreted as one more clue that a knowledge of syntax (in this case a lack of knowledge) affects reading ability.

The final question is whether work on the development of syntactic understanding can improve language skills. In the case of writing the evidence is clear. O'Hare studied (1973) the impact of sentence-combining on seventh-graders' writing. He demonstrated that such practice in combining groups of kernal statements into sentences more structurally complex than those students would normally be expected to write resulted in twenty times normal growth in words per T-unit, "the most reliable measure of syntactic maturity. ... The experimental group's compositions showed evidence of a level of syntactic maturity well beyond that typical of eighth graders and in many respects quite similar to that of twelfth graders" (p. 67). Even experimental students with low IQ's made significant gains in syntactic maturity.

Stotsky, in her lengthy review of sentence-combining (1975), suggests that such exercises may have opened the door to "an uncharted and unexplored area--the concept of writing as a profound mental activity" (pp. 66-67), which may facilitate cognitive growth as well as reading ability. She cites the "meager evidence" available on whether a writing approach can improve reading comprehension: in one experimental writing program reading comprehension gains were noted at the .06 level for four out of seven experimental classes, and in another study,

work on syntax and paragraph structure in the seventh grade improved reading comprehension at the .01 level. One study (Hughes, 1975) of twenty-four seventh graders reported on an experimental group which had ten to thirteen weeks of sentence combining exercises and a control group which were given regular language arts activities but no sentence combining exercises. On a standardized test of reading speed and accuracy there was no difference in gains of the two groups, but miscue analysis showed that the experimental group's reading improved significantly in the use of grammatical relations and in the integration of syntactic and semantic cues. Cooper and Petrosky (1976) mention further research in progress on the effects of sentence combining practice on reading ability. They are awaiting the results of this before definitively recommending such practice as part of a reading program. This subject of the effect of direct syntactical work on reading ability would seem to be a fruitful and exciting area for further research.

Suggestions for Strengthening the Language Development of Disabled Secondary Readers

If, then, the disabled secondary reader suffers from a low level of language development, as we have tried to show; if also this low level of language development is caused--at least to an extent--by exposure to a deprived language environment; if an improved level of language development would help this disabled reader not only in the areas of cognitive development but also in writing and reading; and if there's still a chance that a person's ability with language can be improved at the secondary level--what, finally, can we do to help him?

I. The strongest answer would seem to be to expose him to the richest variety of language possible, an exposure which has probably been denied him in a way affecting his language development. This is a suggestion made by Carol Chomsky in her study of reading backgrounds and linguistic stages (1972) and is based on the nature of language acquisition, which occurs naturally as people mature and develop in an environment where they are adequately exposed to language and where they can put such inputs to use in their own ways. It is akin to "assisted

reading" (Hoskisson and Krohm, 1974), the purpose of which is to give students the full context of written language, not worksheets with only bits and pieces of language. It has its roots in the basic assumption of the psycholinguistic-information processing theory of reading: "Reading programs must enhance the strategies natural to the reading process. Readers ... need practice at the strategies natural to the skill of reading" (Cooper and Petrosky, 1976, p. 200). It would provide an antidote to "controlled" reading and reading "made easy" as students' "structural understanding of their reading material could be enhanced by greater exposure to the more complex syntax of informed adult speech" (Stotsky, 1975, p. 43). It also is the way reading--and language--were taught back in the "good old days" when "the basics" were the only things around. Here is a descrip- of "English" at the turn of the century in a Kansas country school:

> Readers were fairly solid affairs, designed to do more than develop skills. They included chapters from novels by Dickens, selections from Walden and Gulliver's Travels, and poems by various English and American poets. Four Americans always appeared: Longfellow, Lowell, Poe, and Whittier. ... The Psalm of Life, Barefoot Boy, parts of Thanatopsis, and Lowell's stanza on June were usually memorized. I recall that at about the sixth grade our teacher read Oliver Twist aloud as part of the morning exercises, younger pupils being expected to appear attentive (as they did). We also did choral reading. On one occasion the four upper groups memorized Byron's Battle of Waterloo and recited the whole as a single voice. (LaBrant, 1977, p. 6)

The way these disabled secondary readers could read the originals (and perhaps we can henceforth use the acronym ROR) would be to provide them with both tapes and printed copies. If ears and also eyes are put to work on interesting material, the problem of comprehension should be solved. Here are some suggestions for solidly written original reading material appealing to secondary students: Edgar Allan Poe ("The Pit and the Pendulum," "The Tell-tale Heart," "The Cask of Amontillado," "The Oblong Box"); Robert Louis Stevenson ("The Strange Case of Dr. Jekyll and Mr. Hyde"); Mark Twain ("The Celebrated Jumping Frog of Calaveras County," Huckleberry Finn); Jack London ("To Build a Fire," The Call of the Wild); Arthur Conan Doyle's Sherlock Holmes stories; J.D. Salinger (The Catcher in the Rye); Ernest Hemingway ("My Old

Man," "The Short Happy Life of Francis Macomber," "The Snows of Kilimanjaro," A Farewell to Arms); John Steinbeck ("Flight," Of Mice and Men, The Red Pony); O. Henry ("The Cop and the Anthem," "The Gift of the Magi," "The Ransom of Red Chief"); F. Scott Fitzgerald ("Babylon Revisited," The Great Gatsby); Kurt Vonnegut (Welcome to the Monkeyhouse, Slaughterhouse-Five); Shirley Jackson ("The Lottery," "Charles"); James Thurber ("The Secret Life of Walter Mitty," "Snapshot of a Dog"); Dorothy Parker ("The Waltz"); Dick Gregory (Autobiography); Gordon Parks (Autobiography); Mary Shelley (Frankenstein); Bram Stoker (Dracula); perhaps such current popular novels as Carrie, The Omen, Sybil, or Jaws (after proper expurgation as necessary).

II. The following ideas are all based on the assumption, discussed earlier, that syntactic knowledge does affect language, and particularly reading skills. First of all might be exercises in combining sentences in order to lengthen them, as suggested by Francis Christensen in "A Generative Rhetoric of the Sentence" (in Christensen, 1967). The basic sentences in this and the next section are taken from Frank Bonham's The Nitty Gritty (1968).

1. Begin with a main clause, then qualify it, or compare it, or detail it, as follows:

   Basic sentence: Charlie kept forking in the food,

   Qualifying: smearing red sauce from the ribs over his mouth,

   Comparing: like a mechanical arm in the Schlitz beer factory,

   Detailing: bread mixed with collards, butter mixed with the ribs.

2. Examples of two-level and multi-level sentences:

   [1]Charlie's father muttered,
   [2]stripping the meat from a spareribs with his teeth.

   [1]Charlie's father drank deeply from the can of beer by his plate,
   [2]slurping some beer over his cheeks,
   [2]licking it all off to get the last drop.

   [1]Charlie would come out of a dream
   [2]like a person walking from a theater on a summer afternoon,
   [3]blinking in the cruel sunlight.

3. Examples of basic sentences to add to:

   a. The old building sounded fascinating, especially the basement, _____ _____.

   b. Some of those old winos were interesting, _____.

   c. Outside, Charlie heard a motorcycle popping along like _____.

   d. Charlie was seventeen, short for his age but _____.

III. Next, break complex sentences into kernels, or, vice-versa, combine kernels into complex sentences:

   a. Complex sentence: Since Charlie was not especially interested in the conversation, he let his mind slip out of gear like a car. Kernels: 1) Charlie was not especially interested in the conversation; 2) Charlie let his mind slip out of gear; 3) Charlie's mind was slipping out of gear like a car.

   b. Complex sentence: Charlie had talked to some old winos around the bars on Ajax Street, the main stem of Dogtown, a rundown section of the big city where he lived. Kernels: 1) Charlie had talked to some old winos around the bars on Ajax Street; 2) Ajax Street was the main stem of Dogtown; 3) Dogtown was a rundown section of the big city where Charlie lived.

IV. Then, exercises such as the following give practice in such structures as expanded verb forms, the negative, passives, connectives, and indirect discourse. These few examples are taken from McCarr (1973).

   1. Give the sentence a "helping word."

      The boys ran in the hall. The boys _____ _____ in the hall.

   2. This question is wrong. Make one change, and write it correctly.

      Wrong: Did Tom lost his cap? Correct: _____?

   3. Change to a question.

      They play baseball sometimes. _____?

   4. Write the answer. Where did the boys walk? The boys _____ _____ a)in the morning; b)fast; c)to the park

   5. Read the sentence. Write in "so" or "because."

      The house was locked _____ Ann couldn't get in.

   6. Change to indirect discourse.

      Tom said, "The game is starting." _____.

7. Write in the correct answers.

Bob's bike was bought by Mike. _____ bought the bike. He paid _____ $10.

V. Finally, exercises based on Fillmore's case grammar might direct the students to an understanding of the semantic relationships between parts of sentences. For a discussion of this approach to grammar, see Brown (1973, pp. 132-147).

1. Start with a verb, such as gave or hit.

2. Add the agent, in two ways (the animate instigator of action):

Mike gave the party. The party was given by Mike. Mike hit Ed. Ed was hit by Mike.

3. What was the instrument? (The inanimate object causing the action).

The wind gave me a cold. The car hit Ed. Mike hit Ed with a rock.

4. Who was affected by the action? Me and Ed in the above sentences.

5. Where was the action taking place? Mike gave the party in his basement. With a rock, Mike hit Ed on his head.

6. When did the action take place? Mike gave the party in his basement two weeks ago. Last Saturday Mike hit Ed with a rock on his head.

7. Who benefitted from the action? Mike gave the party for Jenny in his basement two weeks ago.

8. Who else was along? With Sue and Jane making two dozen pizzas, Mike gave the party for Jenny in his basement two weeks ago. Mike, with the help of Bob, hit Ed on his head last Saturday.

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